sions were significantly lower for arformoterol patients than Neb-SABA patients (8.7% vs. 12.1%, p=0.0169). Adjusted odds of readmission were estimated to be 44% less for arformoterol patients (OR 0.56, 95% CI 0.41-0.78). **CONCLUSIONS:** All-cause 30-day readmissions were significantly fewer for arformoterol patients than neb-SABA patients, both before and after adjusting for patient and hospital factors such as ICU care.

RESPIRATORY-RELATED DISORDERS – Research on Methods

PRS50
IS IT APPROPRIATE TO MEASURE ASTHMA CONTROLLER ADHERENCE USING PHARMACY CLAIMS DATA?

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While possession-based adherence measures are typically used to compare medication adherence using pharmacy claims, these measures are difficult to verify for inhaled asthma medications because the claim-reported days' supply may not reflect the actual duration of use. **OBJECTIVES:** To compare medication adherence to all asthma controllers to that in subsets of patients using Flucitasone/Salmeterol disk with inhalation device (combination inhaler, CI) or leukotriene inhibitors (LT) which are more likely to accurately reflect days' supply in the claim, across pharmacy dispensing channels. **METHODS:** Commercially insured US patients aged 12-63 and medically diagnosed for asthma were followed for one year after initiation of an asthma controller using a retrospective, claims-based design. Adherence was defined using Medication Possession Ratio (MPR). CI and LT subsets included all patients using one of these as the index medications. The multivariate-adjusted relationship between adherence and channel was evaluated using a generalized linear model. **RESULTS:** A total of 6014 patients were included in the overall study cohort, with 2222 in the CI subgroup and 1884 in the LT subgroup. The adjusted MPR for asthma controllers in the retail pharmacy cohort was 39.70% (95% CI 37.08-42.52%) compared to 62.43 (95% CI 58.19-66.97%) in the mail-order cohort. In comparison, the adjusted MPR for retail and mail-order pharmacy cohorts were 38.33% (95% CI 34.58 - 42.49%) and 57.85 (95% CI 52.13-64.20%) in the CI subgroup and 49.01% (95% CI 43.83-54.79%) and 69.25 (95% CI 52.13-77.56%) in the LT subgroup, respectively. **CONCLUSIONS:** In a large, nationally representative cohort, adherence to asthma controllers and differences in adherence across dispensing channels were similar in magnitude to those in two subgroups with more accurate days supply information. It may be reasonable to use possession-based asthma adherence measures derived from pharmacy claims, despite potential errors in capturing days' supply.

PRS51
COMPARISON OF RISK ADJUSTMENT MODELS IN PREDICTING DISEASE SPECIFIC AND TOTAL HEALTH CARE EXPENDITURE FOR COPD

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OBJECTIVES: To compare and determine the best risk adjustment model for predicting disease specific and total health care expenditure associated with Chronic Obstructive Pulmonary Disease (COPD). **METHODS:** Data from 2005-2008 Medical Expenditure Panel Survey, involving adults ≥18 years with COPD diagnosis were used to evaluate risk adjustment measures. The outcomes of COPD specific health care expenditure, total inpatient expenditure, total outpatient expenditure and total health care expenditure were modeled using linear regression. Baseline characteristics included age, gender and race. The six different risk adjustment measures compared were total number of medications, total number of respiratory medications, D'Hoore-Charlson, Deyo-Charlson, modified Elixhauser and General Health Status (GHS). Different combinations of these measures were used to derive the best risk-adjustment model having the highest Adjusted-R2. Validation of the risk adjustment measures was performed on 2009 MEPS data. **RESULTS:** Of the six risk adjustment measures, the total number of respiratory medications performed best for predicting COPD specific expenditure (Adj. R2: 24.62%). The total number of medications best predicted inpatient, outpatient and total health care expenditures (Adj. R2: 17.71%, 6.44% and 32.71% respectively). No combination of risk adjustment models led any improvement in predicting COPD specific health care expenditures. The combination of count of all medications with modified Elixhauser index performed best in predicting inpatient, outpatient and total health care expenditure (Adj.R2: 18.44, 7.91 and 34.87 respectively). **CONCLUSIONS:** Number of respiratory medications may be an indicator of severity of the disease, thereby best predicting the disease specific health care expenditure, where as simple construct of count of all medications used is the best predictor of total health care expenditure. Medication-based measures can be effective and easy to use in risk-adjusting health care expenditures.

PRS52
THE STABILITY OF ADDITIVE TREATMENT EFFECTS IN MULTIPLE TREATMENT COMPARISON META-ANALYSIS: A SIMULATION STUDY

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OBJECTIVES: Medical interventions are often administered as treatment combinations (e.g., drug A + drug B). Models for effects of treatment combinations in multiple treatment comparison meta-analysis (MTCs) have previously been proposed. The objective of this study was to evaluate the comparative statistical performance of the conventional MTC model and an 'additive effects' MTC model, in scenarios where 'additivity' holds true (i.e., where the effect of effect of treatment A and B combined is equal to the sum of the individual effects of treatment A and treatment B) and in scenarios where 'additivity' is mildly or strongly violated. **METHODS:** We simulated MTC scenarios where additivity held true or was violated. We applied conventional and additive effects Bayesian MTC models to the simulated data. We measured the proportion of over- and underestimated treatment effects, the coverage of the 95% credible intervals, and the statistical power. **RESULTS:** Under true additivity, the additive effects model is superior to the conventional model. Under mildly violated additivity, the additive model is less accurate (more over- and underestimates), but more precise (comparable coverage and greater power). Under strongly violated additivity, the additive model performs worse in terms of accuracy and coverage. **CONCLUSIONS:** The additive model may readily be used in practice when approximate additivity can be assumed.

PRS53
TEST-RETEST RELIABILITY OF THE URTICARIA PATIENT DAILY DIARY IN ELECTRONIC FORMAT AMONG ADULTS AND ADOLESCENTS

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OBJECTIVES: The Urticaria Patient Daily Diary (UPDD), originally developed in paper format, has been migrated to an electronic version. This study was designed to assess the test-retest reliability of the electronic version (ePRO) of the UPDD. **METHODS:** The UPDD includes a morning component, assessing CIU symptoms and impact on sleep, and an evening component, assessing symptoms, impact on daily activities, rescue medication use, and contacting a health care provider. Adults and adolescents with moderate to severe chronic idiopathic urticaria (CIU) completed the morning and evening ePRO UPDD once, engaged in an hour-long filler task (Sudoku puzzles), and then completed the UPDD again. Test-retest reliability between the two UPDD completions was assessed by item using a weighted Kappa, a simple Kappa for a dichotomous item (angioedema), and McNemar's test for one item (calling a doctor/nurse). Intraclass correlation coefficients (ICCs) assessed the reliability of the Urticaria Activity Score (UAS), which is the sum of the 'itch severity' and 'number of hives' item scores. **RESULTS:** Forty-five patients aged 13 to 74 years (mean 43.6 years) with stable symptoms at time of diary completion participated. Kappa values ranged from 0.83 to 1.00 for the ePRO UPDD items. The McNemar's test yielded a non-significant p-value (p = 0.317). For the UAS, ICC was 0.83 for the morning ePRO UPDD and .96 for the evening ePRO UPDD; each of the Wilcoxon p-values was greater than 0.05. **CONCLUSIONS:** All Kappas were above the 0.74 threshold (Coons et al, 2009), indicating excellent test-retest reliability. No significant differences were found between test and retest scores on the UAS or the 'contacting health care provider' item. In summary, the ePRO UPDD showed excellent test-retest reliability in a sample of CIU patients whose symptoms were stable at time of UPDD completion.

PRS54
ACCEPTABILITY OF THE SELF-ADMINISTERED COMPUTERIZED (SAC) VERSIONS OF THE BASELINE/TRANSITION DYSPNEA INDEXES (BDI/TDI) FOR PATIENTS WITH COPD FROM SEVEN COUNTRIES

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OBJECTIVES: The original interviewer-administered versions of the Baseline/Transition Dyspnea Indexes (BDI/TDI) were modified by the originator to create self-administered and computerized (SAC) versions. The rationale for the development of the SAC versions was to offer a standardized method for patients to report the impact of activities of daily living on the severity of their breathlessness. The objective of this study is to present the acceptability of the SAC versions of the BDI/TDI to patients with COPD from seven countries including eight different languages [Dutch (The Netherlands), English (Canada, UK), Flemish (Belgium), French (Belgium, Canada), German (Germany), and Spanish (Spain)]. **METHODS:** A standardized methodology was followed to translate the SAC BDI/TDI (e.g., forward/backward step, review by author). The test on 5 COPD patients in each country was conducted in form of in-depth interviews to evaluate 1) comprehension, and 2) acceptability using laptop computers. **RESULTS:** Overall, most patients liked the SAC versions, and about half preferred it to a interviewer-administered questionnaire. Only four of 35 patients had problems using the mouse to click on the right answer for the BDI (e.g., difficulties of coordination, or in using the left button). The items were understood with no difficulties; the main challenging issue was ease in understanding the equivalents of "Baseline" and "Transition". At first, 42% of the patients, especially in Germany (4/5 patients), Spain and UK (3/5 patients), had difficulties with the instructions to select answers on the TDI using the up-and-down elevator buttons. These difficulties did not persist after the practice question designed to help the patients to become familiar with clicking an "X" (BDI), and using the up-and-down arrows (TDI). **CONCLUSIONS:** The SAC versions of the BDI/TDI were well accepted by patients from seven different countries. Special attention and supervision should be given to patients not familiar with computer use.

PRS55
A NEW CONCEPT OF PATIENT REPORTED OUTCOME ON QUALITY INDICATORS FOR PHARMACEUTICAL CARE

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OBJECTIVES: A new concept of Patient-Reported Outcome (PRO) on quality indicators for pharmaceutical services is presented. It aims to supplement postmarketing surveillance tools. It is based on research findings from a patient survey instrument designed at Harvard and applied to a Primary Care Group in Warwickshire, as a quality improvement tool (Value in Health, vol 5, issue 3, 2002). AHRQ considers the